



Original Communication

Sudden cardiac death of a woman during extramarital sex: A case report and review of the literature

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ABSTRACT

Sudden death of cardiac patients related to sexual activity has been widely reported in the medical and forensic literature, specifically of male partners in heterosexual relationships, usually with extramarital partners.

We present a unique case of a 46 year old woman who died during a sexual encounter with her lover. Cause of death was an acute cardiac failure due to hypertensive chronic cardiovascular disease, following sexual activity.

The factors which contributed to her death are discussed and reviewed in light of similar reports in men.

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Sudden death of cardiac patients following sexual activity is a well known entity, mostly related to male partners in heterosexual relationships.

Between the years 1999 and 2008, the National Center of Forensic Medicine in Israel (population of 7.4 millions) investigated at least one case annually of sudden death of a male engaged in sexual activity. All these events took place with substantially younger women, in extramarital settings. Cause of death (COD) in all cases was determined as sudden cardiac failure due to atherosclerotic coronary artery disease, with no evidence of acute myocardial infarction. In only one instance the toxicological examination revealed traces of sildenafil in the blood.

The presented case is unique in that the deceased was a female affected by chronic hypertensive cardiovascular disease, engaged in a long standing extramarital romantic relationship.

1. Case report

A 46-year old woman, married and mother of two, has been meeting with her 52-years old married lover twice a month for several years.

These sexual encounters were conducted in the male partner's class B car, typically lasting less than an hour. The last tryst took

place on a hot summer afternoon, in a car exposed to direct sunlight. Reportedly, the male companion urged her to rush their activities as he was supposed to pick up his wife later on. During foreplay, the woman became dyspneic, and was unable to drink the water offered by her companion. He rushed her to a nearby medical center and immediately drove off. She was pronounced dead on arrival. Rectal temperature was not measured.

The lover was later apprehended by local police and released after questioning.

Autopsy revealed an obese female (BMI = 32), with enlarged heart of 560 g, with thickening of the anterior left ventricular wall and interventricular septum, atherosclerotic narrowing of three major coronary vessels of up to 60–70% of the lumen, and severe pulmonary edema and congestion.

Microscopic examination of the heart did not disclose acute myocardial infarction, but rather myocardial hypertrophy along with interstitial fibrosis. Severe fatty change of the liver and hepatomegaly (2360 g) were noted. Other organs, along with her brain, showed acute congestion. Toxicological screening revealed no alcohol, drugs or any other chemical substance in her body.

Medical history of the deceased included treatment for essential hypertension, and a simple hysterectomy for leiomyomata performed 7 years earlier.

Cause of death was determined as acute cardiac failure due to hypertensive chronic cardiovascular disease, following sexual activity.

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2. Discussion

The most common cause of sudden natural death in adults in the US is heart disease, followed by malignancies and cerebrovascular events.¹

Physical exercise related deaths above the age of 35 years are usually associated with an underlying coronary artery disease (CAD). Strenuous physical activity, obesity, extreme climactic conditions and psychological stress, are the most common aggravating factors in patients affected by chronic cardiac disease. A combination of two or more such factors serves to further increase the risk of sudden death.²

The occurrence of sudden death following sexual activity due to exacerbation of previous cardiovascular pathology was considered by several researchers.

A study by DeBusk³ compared physical responses in different types of sexual activities carried to orgasm (self stimulation, partner stimulation, woman on top, man on top), and made the distinction between the phase of sexual arousal and the exertion during the physical act. The greatest oxygen consumption and heart rate were registered in the “on-top” position, which could be attributed to both greater arousal and greater physical exertion.

In a study conducted in Korea⁴ on causes of sudden death related to sexual activity, out of the 14 reported fatalities, only five women were described, aged 43–50 years, three of which died from subarachnoid hemorrhage (SAH), while two suffered from complications of CAD, which falls within the gender differences in cause of death in the general population (CAD in men vs. SAH in women). Sudden death following sexual activity is mainly caused by re-infarction or acute myocardial infarction (AMI) in males, while in females most commonly by intracranial hemorrhage or cardiovascular disease.

These findings are supported by Parzeller et al.,⁵ who report that the main cause of death following sexual activity in Germany was re-infarction or AMI (55%), followed by coronary artery disease (29%) or, less commonly, left ventricular hypertrophy (9%). Two instances of intracerebral hemorrhage and one myocarditis were listed in this study, all three of which in women between the ages of 43 and 49 years.

Recent studies dispute early popular belief that sexual activity necessitates extraordinary physical effort, by showing that in normal settings, healthy adults show only mild to moderate increases in heart rate and blood pressure.⁶ However, this is not the case in individuals suffering from cardiovascular pathologies, in which the relative risk of myocardial infarction in the two hours following sex increases 2.5-fold over the baseline.⁷ Furthermore, all reported cardiac deaths surrounding sexual conducts involved extramarital sex, suggesting psychological stress as an added factor.⁸

Excessive heat or cold predispose coronary patients to anginal attacks and sudden death. Coexistence of extreme climactic conditions and the strain of physical effort, further amplify the chances of such occurrence.

In overweight individuals, there is an increased risk of hyperthermia with growing heat-load, due to impaired heat loss to the

environment caused by adipose tissue acting as an insulator as well as the inability to reach the cardiac output necessary for cooling.⁹

The effects of sexual activity on patients suffering from cardiac arrhythmias were examined by Drory et al.,¹⁰ who found that arrhythmia was not exacerbated during intercourse in most patients, and was most often simple and essentially similar to that of non-sexual daily activities. Our experience with deaths following sexual activity did not concur with their conclusions. In the present case, sudden cardiac failure was most probably precipitated by a combination of heat-overload in a vehicle exposed to direct sunlight and the increased physical effort necessary to carry out sexual activities in a confined space. Although it was impossible to obtain sufficient information as to the deceased position in the car during their foreplay, the authors estimate that the relatively small size of the car required some physical effort for achieving any desirable position to reach sexual gratification.

Obesity and the additional psychological stress caused by the need for discretion and haste, on top of her chronic hypertension, were aggravating factors in our victim.

3. Conflict of Interest

We have no conflicts of interest in regards to this publication.

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Ethical Approval

None declared.

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